Respiratory Medicine (2004) **Supplement A**, S8–S9

ELSEVIER

respiratoryMEDICINE

**EDITORIAL OVERVIEW**

# Asthma management: can we further improve compliance and outcomes?

The prevalence of asthma is continuing to rise throughout the world, particularly amongst children. International asthma management guidelines are widely disseminated and national guidelines have been introduced in many countries around the world. However, asthma is frequently uncontrolled, and still may cause death, despite the availability of effective pharmacological therapy. To date, advancement in asthma management has been pharmacologically driven, rather than device-driven. Problems with drug delivery have been identified due to inappropriate use of inhaler devices, particularly pressurised metered dose inhalers (pMDIs) where patients need to coordinate inhaler activation with inspiration. However, as inhalation is likely to remain the route-of-delivery of choice for the foreseeable future, it is vital that new inhalation devices be sought which effectively and consistently deposit therapeutic agent into the lungs, are environmentally friendly, cost-effective and improve patient compliance.

A satellite symposium held during the 12th Annual Congress of the European Respiratory Society in Stockholm, Sweden, from 14 to 18 September 2002, reviewed several issues surrounding the management of patients with asthma. In particular, current asthma management guidelines were reviewed in terms of their usefulness, limitations and future developments.

Asthma management guidelines are used in most countries around the world and have been important in improving the management of asthma. The principles of modern asthma therapy, and overall goal of every asthma management programme, are to achieve control of the disease. In the 'real' world asthma remains poorly controlled and the reasons for this anomaly (despite the widespread availability of effective pharmacological therapy) are numerous. For example, the guidelines themselves have numerous inherent flaws such as complexity and excessive length and are based on scientific evidence which may be biased and not representative of the general population of patients with asthma. Secondly, patients frequently do not adhere to their treatment regimen for a variety of reasons including incorrect use of inhaler and underestimation of disease severity. Indeed, asthma severity is often mis-classified in the first instance, and inappropriate or insufficient therapy prescribed. Finally, although guidelines agree on the most appropriate therapy to control asthma, the method by which this therapy is delivered to the lungs is neglected. Since it is likely that in the future inhaled $\beta_2$-agonists and inhaled corticosteroids (ICSs) will remain the cornerstone of asthma therapy, development of inhalation devices will become more important than development of new drugs.

Inappropriate use of inhaler devices contributes to lack of asthma control. Clearly, there is a need to develop inhaler devices which are easy to use and deliver a consistent dose of drug to the lungs which may improve patient compliance with treatment leading to better control of asthma. At present, the Global Initiative for Asthma (GINA) guidelines recommend that inhaler devices be portable, easy to operate (especially for children), not require power, require minimal cooperation and coordination and have minimal maintenance requirements. Dry powder inhalers (DPIs) or breath-actuated MDIs are recommended for children aged $>6$ years. Consideration of patient preference and ability to correctly use the device are factors advocated by the British Thoracic Society when deciding on which inhaler to use.

Although inhalation therapy is likely to continue to dominate asthma treatment, at present only three methods of delivery are mostly used in clinical practice: nebulisers, pMDIs and DPIs. Pressurised MDIs have many problems associated with them such as the need for good coordination between inhaler activation and patient inhalation and intensive training. They are also environmentally unfriendly and deposition rates depend on

0954-6111/$ - see front matter 
doi:10.1016/j.rmed.2004.02.004

inhaler technique. DPIs, as a class of inhalation device, overcome several of these problems as they are breath-activated and do not contain propellants. Although DPIs do offer both the patient and the physician several advantages over pMDIs, individually they do have some limitations of design, cost-effectiveness and/or user friendliness. The ideal inhaler should have an innovative design which combines simplicity of use with effective performance. It should also have a low intrinsic resistance ensuring that it is easy to use even in patients with severe airflow obstruction. Feedback mechanisms are important in order to check for compliance and give both the patient and physician confidence that a correct and exact single dose has been inhaled. The inhaler device should be convenient to use, generate a high quality aerosol, and be reliable as well as durable in a range of temperature and humidity conditions. Finally, the ideal inhaler should be cost-effective and environmentally friendly.

My introductory presentation (S8–S9) reviews current asthma management guidelines and their application to the 'real world', discusses problems associated with the guidelines and outlines future asthma therapy. O'Connor (S10–S16) reviews the problems associated with pMDIs and reviews how the many features of the new Multidose Dry Powder Inhaler, the Novolizer® overcome these limitations and those of other DPIs. Kohler (S17–S21) discusses how the device characteristics of the Novolizer® translate into benefits of drug deposition, therapeutic efficacy, easy of use, cost-effectiveness and patient compliance. Finally, Cegla (S22–S28) describes a randomised cross-over study in patients with mild asthma which was conducted to compare patient technique and inspiratory characteristics of the Turbuhaler® and the Novolizer®.

The symposium concluded that inhalation therapy is likely to remain the cornerstone of asthma management for the foreseeable future. Current asthma management guidelines are sensible and based on the best available scientific evidence, but in the future they need to consider the inhaler devices as well to. Inhaler devices should be easy to use and give consistent and accurate dose delivery. In the future, improvements in inhaler technology may be more important than developing new pharmacological therapies. An ideal inhaler should improve drug delivery and patient compliance with therapy and may contribute to achieving asthma control, which is the aim of asthma management guidelines.

Funding for the article was provided by VIATRIS (Frankfurt, Germany)

Peter J Barnes
*Department of Thoracic Medicine, Imperial College School of Medicine, National Heart and Lung Institute, Dovehouse Street, London SW3 6LY, UK*
*E-mail address:* p.j.barnes@imperial.ac.uk